
Xanthosoma riparium (Araceae), a New Species from Goiás, Brazil

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ABSTRACT. A new species of a caulescent *Xanthosoma* (*X. riparium*) from Serra Dourada, state of Goiás, Brazil, is described and illustrated. *Xanthosoma riparium* is most similar to *X. mafaffoides* G. S. Bunting, *X. undipes* (Jacquin) Schott, and *X. maximilianii* Schott, but differs from all these species in having fewer primary lateral veins that arise at a more acute angle. Moreover, the primary lateral veins in *X. riparium* are close to each other near the sinus, becoming more scattered toward the apex, not regularly scattered along the midrib like in *X. mafaffoides*, *X. maximilianii*, and *X. undipes*. This new species appears to be the only caulescent *Xanthosoma* known to be native to central Brazil.

The genus *Xanthosoma* Schott ranges from Argentina to Mexico and the West Indies. Including about 60 species, it is the second largest neotropical genus within the subfamily Aroideae (classification after Mayo et al., 1997). It belongs to the tribe Caladieae Schott and shows a remarkable variability of life forms, ranging from caulescent perennial herbs to seasonally dormant tuberous plants. Some species of *Xanthosoma* have edible leaves or tubers, e.g., *X. sagittifolium* (L.) Schott and *X. violaceum* Schott. They are widely cultivated in the Neotropics (Plowman, 1969), as well as the Paleotropics (Quynh & Uyen, 1987; Okeke, 1992). Species of this genus usually occur as understory herbs in forests, along the margins of streams, in open marshy areas, or on the ground in deciduous or semi-deciduous forests, where they can be seen growing even in humus-filled limestone crevices. It has been presumed that the caulescent life form was primitive in the genus (Madison, 1981), and that the invasion of drier areas forced some species to evolve morphological and ecological adaptations like tuberosity and seasonally induced dormancy. The discovery of a caulescent *Xanthosoma* in the state of Goiás, central Brazil, is somewhat surprising because most caulescent species of this genus occur in Central America and northern South America. Since this *Xanthosoma* does not conform to any of the known caulescent species, it is described here as a new species.

Xanthosoma riparium E. G. Gonçalves, sp. nov.

TYPE: Brazil. Goiás: Reserva Ecológica da Universidade Federal de Goiás em Serra Dourada, próximo à represa, 16°00'S, 50°07'W, 20 Jan. 1996, E. G. Gonçalves 42 (holotype, UB; isotypes, K, MO). Figure 1.

Ad sectionem *Xanthosoma* pertinens. Planta riparia caudice fibrilloso epigaeo usque 51 cm longo. Vagina in fibras murinas soluta. Folia triangulari-sagittata vel ovato-sagittata, partim conduplicata. Nervi laterales primarii 4–5 (raro 6) angulo acuto (35–45°) et costa orientes, prope sinum approximati, remotescens versus apicem. Spathae tubus intus albus, extus viridis.

Herb caulescent, erect, up to 1.5 m tall, growing in clusters along stream banks, producing a milky latex when cut. Stem: thick, covered by old grayish shredded leaf sheaths, 20–51 × 3–7 cm. Leaf: *petiole* green, 58–61 × 1–2 cm, slightly flattened adaxially, sheathed for 1/3 to 1/2 of its length; *leaf blade* glossy green adaxially, paler semi-glossy abaxially, dried leaves greenish or ochre, becoming membranaceous, 42–53 × 19–30 cm, triangular-sagittate to ovate-sagittate, partially conduplicate in living plants; *anterior division* 29–33 × 19–30 cm, apex acuminate, acumen 0.5–1 cm long; *primary lateral veins* 4 to 5 (rarely 6) per side, diverging at 35–45° from midrib, close to each other near the sinus, becoming scattered toward the apex, collective vein 0.5–0.7 cm from the margin; *posterior divisions* 14–16 × 18–29 cm, lobes slightly extrorse, with rounded apex, basioscopic portion well developed, 3–4.5 cm wide, with 2 to 3 veins, acrosopic portion with 2 to 4 veins, sinus broadly parabolic, basal ribs denuded for 1–2.5 cm. Inflorescences: *peduncles* 2 to 3 per leaf axil, 12–20 × 0.8–1.0 cm; *spathe* constricted, 11.5–21 cm long, tube ovoid, 3–6 × 1.8–3 cm, green outside, white inside, lamina ovate, greenish white outside, white inside, 8.5–13 cm long; *spadix* 11–17 cm long, fertile male portion 8–13 × 0.5–1 cm, cylindrical, tapering to the apex, sterile male portion 2–3 × 0.4–0.7 cm, female portion bright yellow, basally adnate to spathe for 1/3 of the length, subsessile, stipe oblique up to 1 mm, 1.2–3 × 0.6–1 cm. Flowers: *synandrium* prismatic, 2–3 × 2 mm, 4- to 5-androus, thecae elongate, opening by an apical pore; *stam-*

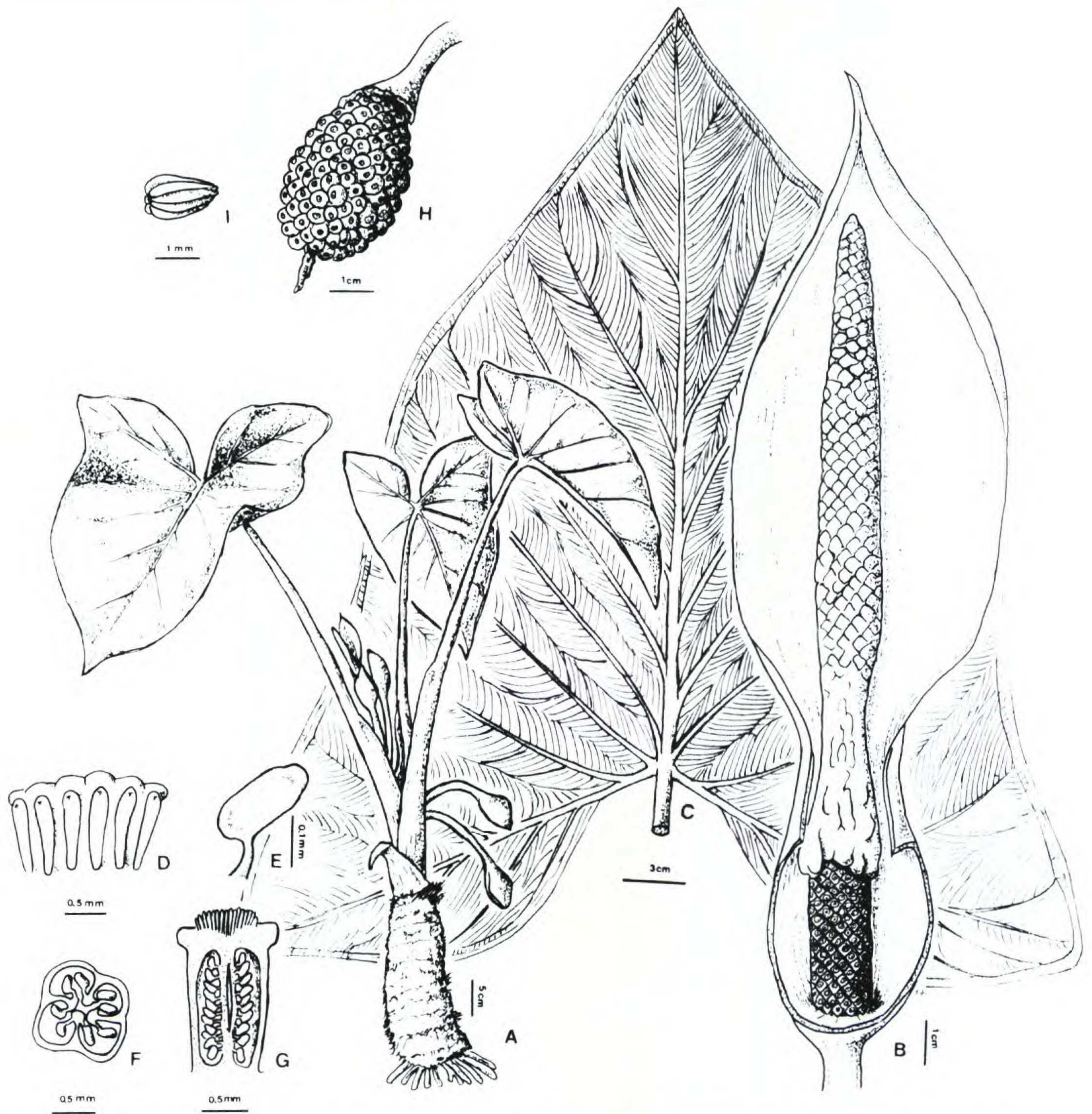


Figure 1. *Xanthosoma riparium* E. G. Gonçalves. —A. Habit. —B. Inflorescence, spathe tube cut to show the female portion of the spadix. —C. Leaf blade. —D. Synandrium, side view. —E. Ovule. —F. Gynoeceium, cross section. —G. Gynoeceium, longitudinal section. —H. Infructescence. —I. Seed, side view. Drawn from Gonçalves 42 by the author.

inodes irregularly shaped, upper ones much broader than lower; *gynoeceium* prismatic, ca. 2×1 mm, style discoid, lobed stigma; *locules* 4, ovules many per locule, axially disposed, funiculus $\frac{1}{2}$ the length of the ovule, lacking trichomes. Fruits: berries globose, cream or greenish white; *seeds* longitudinally striated, ovoid, ca. 1.5×1 mm.

Xanthosoma is poorly represented in central Brazil. All species previously reported as native from this region are seasonally dormant plants from the section *Acontias* Engler (*X. striatipes* (Kunth) Madison, *X. helleborifolium* (Jacquin) Schott, *X. platylobum* (Schott) Engler, *X. plowmanii* Bogner, and *X.*

pentaphyllum Engler), with all of these acaulescent and tuberous. This may be due to the pronounced dry season from May to August, which may eliminate most of the mesophytic caulescent species from understory habitats. *Xanthosoma riparium*, with its caulescent habit, may have persisted because of its adaptation to a semi-aquatic environment. The new species occurs in small clusters of 2 to 3 adult stems and some young propagules on rocky banks along streams. Growing on riverbanks, the plant has access to water, even during the drier months of the year. It is noteworthy that the area where *X. riparium* was collected has a slightly high-

er average rainfall (1600–1800 mm/year) when compared to the surrounding region, which receives around 1400–1600 mm/year (Assad, 1994). Interestingly, the type locality is very near the “Araguaia” Pleistocenic forest refuge proposed by Prance (1982). One can speculate that the caulescent species of *Xanthosoma* were widespread in most of South America during warmer and humid periods, and they were eliminated (or became restricted to smaller areas) when the climate became more seasonal.

Xanthosoma riparium seems to have been overlooked for a long time. There is a specimen collected by M. A. Weddell (s.n.) in 1844 that can certainly be referred to this species. It was autographed by Engler as “*Xanthosoma spec.*,” but he did not describe it as new. The species was re-collected by H. S. Irwin et al. in 1966 and again by me in 1996.

Xanthosoma riparium belongs to the section *Xanthosoma* Engler (formerly known as sect. “*Euxanthosoma*” Engler). This species is most similar to *X. mafaffoides* G. S. Bunting, a caulescent species known only from southern Venezuela. However, the primary basal veins in *X. riparium* are close to each other near the sinus, becoming more scattered toward the apex. In *X. mafaffoides*, the primary lateral veins are regularly scattered along the midrib (see illustration in Bunting, 1988). Moreover, *X. riparium* has fewer primary lateral veins (up to 5 or rarely 6, instead of 7–8), and these veins arise at a sharper angle (ca. 35–45° instead of 55–65°).

Xanthosoma riparium also shares some resemblance with *X. maximilianii* Schott, from Bahia (eastern Brazil), but differs in having the outer surface of the spathe tube green (instead of purplish sea-green), never purple-red inside, spathe lamina without red margins, and partially conduplicate leaves. The primary lateral veins in *X. maximilianii*

are regularly scattered along the midrib, unlike *X. riparium*. I have also observed in living plants that *X. maximilianii* has brownish, shredded old leaf sheaths in the stem, whereas they are grayish in *X. riparium*. Some depauperate forms of *X. undipes* (Jacquin) Schott can also be confused with *X. riparium*, mainly those growing in disturbed areas under full sunlight. However, all material of *X. undipes* I have so far observed has primary lateral veins regularly scattered along the midrib and a purple inner portion of the spathe (not white as in *X. riparium*).

Paratypes. BRAZIL. **Goiás:** 1844 Weddell s.n. (P); Serra Dourada, ca. 30 km SE of Goiás Velho, elev. 700 m, 21 Jan. 1966, Irwin, Souza & Santos 11915 (SP, UB not seen).

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